

CLAIMS

Claim 1 (Previously Presented): In a wireless communication device having a processor, a computer readable memory, and at least one hardware resource coupled to each other, a method of operating the hardware resources comprising the steps of:

a) locating a first address in the computer readable memory of the wireless communication device, the first address containing operating information associated with a first hardware resource;

b) transmitting operating information associated with the first address to the first hardware resource;

c) reading a pointer associated with the first address that locates a subsequent address for a subsequent hardware resource; and

d) repeating steps a) through c) for a quantity of pointers respectively associated with multiple hardware resources,

wherein the method is performed in real time while the wireless communication device is operating.

Claim 2 (Previously Presented): The wireless communication device recited in claim 1 wherein the method further comprises the step of:

e) returning to the first pointer when all of the quantity of pointers has been exhausted in a list stored in memory.

Claim 3 (Previously Presented): The wireless communication device recited in claim 1 wherein the method further comprises the step of:

e) repeating steps a) through c) for each of multiple sets of operating information associated with multiple uses of the hardware resource.

Claim 4 (Previously Presented): The wireless communication device recited in claim 3 wherein the multiple sets of operating information are utilized within a system cycle.

Claim 5 (Previously Presented): The wireless communication device recited in claim 1 wherein the method further comprises the step of:

e) repeating steps a) through d) for a plurality of entries of operating information for the hardware resource, wherein each of the entries is respectively associated with a reuse of the hardware resource for a different application at a different point in time.

Claim 6 (Previously Presented): The wireless communication device recited in claim 1 wherein the information for operating the first hardware resource includes semi-static hardware control parameters.

Claim 7 (Previously Presented): The wireless communication device recited in claim 6 wherein the semi-static hardware control parameters include flags, parameters, or states for the first hardware resource.

Claim 8 (Previously Presented): The wireless communication device recited in claim 1 wherein the information for operating the first hardware resource includes dynamic hardware control parameters.

Claim 9 (Previously Presented): The wireless communication device recited in claim 8 wherein the dynamic hardware parameters are controlled by dedicated hardware resources.

Claim 10 (Previously Presented): The wireless communication device recited in claim 7 wherein the hardware resources include at least one tracking finger.

Claim 11 (Previously Presented): The wireless communication device recited in claim 1 wherein the hardware resources include at least one searcher element.

Claim 12 (Previously Presented): The wireless communication device recited in claim 1 wherein the hardware resources include at least one downlink transmitter element.

Claim 13 (Previously Presented): The wireless communication device recited in claim 1 wherein the hardware resources include at least one matched filter element.

Claim 14 (Previously Presented): The wireless communication device recited in claim 1 wherein the method further comprises the step of:

e) executing a pointer from a primary list of pointers that transfers control to a secondary list with operating information associated with the hardware resource.

Claim 15 (Previously Presented): The wireless communication device recited in claim 1 wherein only the hardware resources in the secondary list that are grouped together for a specific category are enabled via the pointer from the primary list.

Claim 16 (Previously Presented): The wireless communication device recited in claim 15 wherein the secondary list has a pointer at the end of the operating information grouped together for the specific purpose, the pointer for the secondary list returning control to the primary list.

Claim 17 (Previously Presented): The wireless communication device recited in claim 15 wherein the primary list has a plurality of pointers that point to at least one other list that tracks an identification of a user of hardware resources.

Claim 18 (Withdrawn): In a wireless communication device having a processor, a computer readable memory, and at least one hardware resource all coupled to each other, a method of generating a scheduler for managing the hardware resource, the method comprising the steps of:

- a) receiving at the wireless communication device, a quantity of hardware resources available in the wireless communication device;
- b) receiving operation information for the hardware resource; and
- c) generating a list in the memory for linking requests for using the hardware resource,

wherein the method is performed in real time while the wireless communication device is operating.

Claim 19 (Withdrawn): The wireless communication device recited in claim 18 wherein the method further comprises the steps of:

- d) receiving a request from a requester for using the hardware resource in the wireless communication device; and

e) associating operating information for the given hardware resource with the requester in an entry of the list.

Claim 20 (Withdrawn): The wireless communication device recited in claim 18 wherein the hardware resources managed by the list have the same function.

Claim 21 (Withdrawn): The wireless communication device recited in claim 18 further comprising the step of:

d) generating a memory address that links the operation information of the hardware resources to another hardware resource.

Claim 22 (Withdrawn): The wireless communication device recited in claim 19 further comprising the step of:

f) generating a memory address that links a last hardware resource to a first hardware resource.

Claim 23 (Withdrawn): The wireless communication device recited in claim 19 further comprising the step of:

f) generating a memory address that links the hardware resources for each of multiple reuses within the given time span.

Claim 24 (Withdrawn): The wireless communication device recited in claim 19 further comprising the step of:

f) generating a second list that provides a pointer to operation information of hardware resources that have a common category.

Claim 25 (Withdrawn): A wireless communication system for communicating information between a host communication device and an external communication device, the system comprising:

a receiver for receiving in real time a request for using a hardware resource in the host communication device for communicating to the external communication device of the wireless communication system;

means for modifying in real time a scheduler for the hardware resources in computer memory of the host communication device to satisfy the request; and

means for operating in real time the hardware resources in the host communication device according to the modified scheduler.

Claim 26 (Previously Presented): In a wireless communication device having a processor, a means for storing a list of information, and at least one hardware resource coupled to each other, a method of operating the hardware resources comprising the steps of:

a) locating a first address in the means for storing a list of information of the wireless communication device, the first address containing operating information associated with a first hardware resource;

b) transmitting operating information associated with the first address to the first hardware resource;

c) reading a pointer associated with the first address that locates a subsequent address for a subsequent hardware resource; and

d) repeating steps a) through c) for a quantity of pointers respectively associated with multiple hardware resources,

wherein the method is performed in real time while the wireless communication device is operating.

Claim 27 (Previously Presented): A method of controlling hardware resources in a wireless communication device having a processor and a memory coupled to each other, the method comprising the steps of:

locating a first memory address in the memory associated with a first hardware resource;

transmitting control information associated with the first memory address to the first hardware resource to enable utilization of the first hardware resource; and

determining a pointer that is associated with the first address that locates another memory address in the memory associated with a hardware resource that can be subsequently utilized,

wherein the method is performed in real time while the wireless communication device is operating.

Claim 28 (Previously Presented): An apparatus for managing hardware resources in a wireless communication device having a controller and a memory, the apparatus comprising:

means for locating a first memory address in the memory associated with a first hardware resource;

means for transmitting from the controller control information associated with the first memory address to the first hardware resource; and

means for determining a pointer that is associated with the first memory address that locates another memory address in the memory associated with another hardware resource,

wherein the method is performed in real time while the wireless communication device is operating.

Claim 29 (Previously Presented): A method of operating a plurality of hardware resources of a wireless communication device comprising the steps of:

a) locating a current address in a memory, the current address containing operating information associated with a current hardware resource of the plurality of hardware resources;

b) transmitting to the current hardware resource operating information associated with the current address to the current hardware resource;

c) reading a pointer in the memory, which is associated with the current address, that identifies another address containing operating information for operating another hardware resource of the plurality of hardware resources; and

d) determining whether the current hardware resource is reused within a system cycle,

wherein if the current hardware resource is reused within a system cycle, further comprising the steps of:

e) saving the current hardware resource information from a current use; and

f) repeating steps b), c), and d) until the current hardware resource is not reused within a system cycle.

Claim 30 (Previously Presented): A method of operating a plurality of hardware resources of a wireless communication device comprising the steps of:

- a) locating a current address in a memory, the current address containing operating information associated with a current hardware resource of the plurality of hardware resources;
- b) transmitting to the current hardware resource operating information associated with the current address to the current hardware resource;
- c) reading a pointer in the memory, which is associated with the current address, that identifies another address containing operating information for operating another hardware resource of the plurality of hardware resources; and
- d) determining whether the current hardware resource is reused within a system cycle, wherein if the current hardware resource is not reused within a system cycle, further comprising the steps of:
 - e) determining whether operation of the current hardware resource should be terminated; and
 - f) if operation of the current hardware resource should not be terminated, repeating steps a), b), c), and d) for another hardware resource of the plurality of hardware resources that becomes the current hardware resource.

Claim 31 (Previously Presented): The method of claim 29, wherein a hardware resource is at least one of a searcher element, a downlink transmitter element, matched filter element, or tracker element.

Claim 32 (Previously Presented): An apparatus for dynamically implementing changes for scheduling hardware resources in a wireless communication device having a memory, the apparatus comprising:

- a) means for locating a current address in the memory, the current address containing operating information associated with a current hardware resource;
- b) means for transmitting operating information associated with the current address to the current hardware resource;
- c) means for reading a pointer associated with the current address, that identifies another address containing operating information for another hardware resource of the device; and
- d) means for determining whether the current hardware resource is reused within a system cycle;

wherein if the current hardware resource is reused within a system cycle, further comprising:

- e) means for saving the current hardware resource information from a current use,

wherein the changes for scheduling hardware resources are implemented in real time while the wireless communication device is operating.

Claim 33 (Previously Presented): An apparatus for dynamically implementing changes for scheduling hardware resources in a wireless communication device having a memory, the apparatus comprising:

- a) means for locating a current address in the memory, the current address containing operating information associated with a current hardware resource;
- b) means for transmitting operating information associated with the current address to the current hardware resource;
- c) means for reading a pointer associated with the current address, that identifies another address containing operating information for another hardware resource of the device; and
- d) means for determining whether the current hardware resource is reused within a system cycle;

wherein if the current hardware resource is not reused within a system cycle, further comprising:

- e) means for determining whether operation should be terminated,

wherein the changes for scheduling hardware resources are implemented in real time while the wireless communication device is operating.

Claim 34 (Previously Presented): The apparatus of claim 32, wherein a hardware resource is at least one of a searcher element, a downlink transmitter element, matched filter element, or tracker element.

Claim 35 (Withdrawn): A method of generating a scheduler for managing a plurality of hardware resources of a wireless communication device, the method comprising the steps of:

- a) determining a quantity of available hardware resources for the communication device;
- b) generating a list in a memory for linking requests to the hardware resources;
- c) receiving information of a desired quantity of hardware resources to be operated in the communication device;
- d) receiving hardware resources operation information;
- e) receiving a request to use at least one of the hardware resources;
- f) assigning an address in the memory to the hardware resource operation information for each of the hardware resources; and
- g) linking the memory addresses of hardware resources.

Claim 36 (Withdrawn): The method of claim 35, wherein the list is a table listing all virtual resources available for a given function.

Claim 37 (Withdrawn): The method of claim 35, wherein the list includes a primary table and a secondary table, the primary table tracking a group allocation and the secondary table mapping virtual uses.

Claim 38 (Withdrawn): An apparatus for generating a scheduler for managing the hardware resources of a wireless communication device having a memory, the apparatus comprising:

- a) means for receiving a quantity of available hardware resources;
- b) means for generating a list in the memory for linking requests to the hardware resources;
- c) means for receiving a desired quantity of hardware resources to be operated in the communication device;
- d) means for receiving hardware resources operation information;
- e) means for receiving a request to use at least one of the hardware resources;
- f) means for assigning a memory address to the hardware resource operation information for each of the hardware resources; and
- g) means for linking the memory addresses of hardware resources.

Claim 39 (Withdrawn): The apparatus of claim 38, wherein the list is a table listing all virtual resources available for a given function.

Claim 40 (Withdrawn): The method of claim 38, wherein the list includes a primary table and a secondary table, the primary table tracking a group allocation and the secondary table mapping virtual uses.